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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,877	03/01/2002	David R. Ohm	51040.P025	6251

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SCHWABE, WILLIAMSON & WYATT, P.C.
PACWEST CENTER, SUITES 1600-1900
1211 SW FIFTH AVENUE
PORTLAND, OR 97204

EXAMINER

MEYER, DAVID C

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
10/087,877	OHM ET AL.	
Examiner	Art Unit	
David C. Meyer	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-19 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "processor" of claims 13, 14, 17, and 18 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 15 and 16 are objected to because of the following informalities: The claims recite "the interior surface" (lines 2 and 6, respectively) without antecedent basis. Appropriate correction is required. As the examiner understands the instant invention, "the interior surface" refers to the previously recited "reflective surface disposed inside the housing". This interpretation will be applied during examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 3, 7, 8, 11, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ackerman (US 5,181,216).

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Regarding claim 1, Ackerman discloses a "photonics module apparatus" comprising:

- a cover member 13 and mounting member 12, which together form a housing
- a laser 15, having a first output 16 and a second output 17
- a reflective surface 30 disposed inside the housing formed by cover member 13 and mounting member 12, and disposed angularly relative to the second output 17 of the laser
- a photodetector 21, which receives light from laser 15 that has reflected from surface 30

See Figs. 1 and 3 and column 2, line 50 to column 3, line 13.

Regarding claim 2, the apparatus receives electrical signals and outputs optical signals via laser 15. The "Background" section of Ackerman describes the use of photonics packages in optical communications systems, wherein received electrical signals trigger the transmission of optical signals. In light of the foregoing, it would seem accurate to call the apparatus of Ackerman a transponder.

Regarding claim 3, mounting member 12 constitutes a substrate with an exterior surface 30, angularly disposed relative to the second output 17, and that reflects light from the second output to the photodetector 21. As written, claim 3 does not make clear relative to what the "substrate" is "elevated", only that an exterior surface of the substrate is angularly disposed relative to the recited second output. Hence, the meaning of "elevated" is ambiguous and could be interpreted to mean "having height".

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Because mounting member 12 clearly has height, Ackerman is deemed to fully anticipate claim 3, in its current form.

Regarding claims 7 and 8, the front facet of laser 15 provides a first light output 16 while the back facet provides a second light output 17 (Fig. 3).

Regarding claim 11, Ackerman states that surface 30 is "metallized" to constitute a mirror (column 3, line 3). This implies the application of a reflective metallic coating to surface 30.

Regarding claims 16 and 19, the apparatus of Ackerman performs all of the recited steps as evidenced by the foregoing discussion.

5. Claims 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamerslag (US 4,854,659).

Regarding claim 16, Hamerslag provides a semiconductor light source 10 having two outputs 12 and 13. Hamerslag further provides a reflective surface 33 to reflect output 13 such that a photodetector 21 indirectly receives light from the second output 13 of light source 10.

Regarding claim 19, the reflective surface 33 is provided on a reflector 30, mounted on a support structure 40 by a leg 31. The surface of the reflector is angled relative to the second output 13 so that it reflects light to the photodetector. The reflector is the functional equivalent of the recited "substrate".

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman. Ackerman discloses the invention as claimed except for the TiO₂ reflective coating. Ackerman discloses a "metallized" coating on surface 30 to constitute a mirror. This would not seem to exclude the possibility of using titanium dioxide pigment. Absent any showing of criticality, the manner of reflective coating applied to create the recited "reflective surface" would have been obvious to one of ordinary skill in the art at the time of invention, in view of the desired system cost and performance requirements.

8. Claims 1-4, 7-10, 15, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 5,808,293).

Figs. 4 and 5 of Yang depict a photonics package comprising:

- a semiconductor light source 40 that provides two outputs
- a number of reflective surfaces that act to reflect from both of said outputs

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- a number of photodetectors each disposed to receive light reflected by a respective one of said outputs

Yang can be used to reject different combinations of the applicant's claims depending on which output of light source 40 is called the "second output". In the following rejections the examiner states explicitly which output is being designated the "second output".

In the rejection of claims 1, 4, and 15, the output of light source 40 facing the spherical lens 39 is designated the "second output".

Regarding claim 1, and in addition to the foregoing, the second output reflects from a number of reflective surfaces to a photodetector 33. Fig. 7 depicts either photodetector 33 or photodetector 41. Let mirror 64 in Fig. 7 correspond to the "reflective surface" recited in claim 1. Now, what Yang lacks is a housing. Claim 1 does not limit the recited "housing" but to say that the recited light source, reflective surface, and photodetector are located inside it. It is well known to enclose all manner of devices in a housing to protect against wear and tear, but especially optical devices, which are susceptible to misalignment and optical distortion from contaminants such as dust. It would have been obvious, therefore, to one of ordinary skill in the art at the time of invention to provide a protective housing in order to prevent misalignment and/or optical distortion from contaminants.

Regarding claim 4, mirror 34, shown in Fig. 4, constitutes a "reflective mirror" to angularly reflect the second output.

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Regarding claim 15, mirror 34 constitutes a "reflective surface" to deflect the second output.

In the rejection of claims 1-3, 7-10, 16, and 19, the output of light source 40 facing monitor 41 is designated the "second output".

Regarding claim 1, and in addition to the foregoing, the second output reflects from mirror 64 and is received by photodetector 41. Yang lacks a housing. The obviousness argument provided above applies to claim 1, independent of which output of light source 40 is designated the "second output".

Regarding claim 2, the device incorporates both electrical and optical components; it outputs optical signals in response to received electrical signals. Hence, it would seem accurate to call the device of Yang a transponder.

Regarding claim 3, mirror 64 is angularly disposed relative to the second output. It constitutes an exterior surface of mirror mount 63, shown in Fig. 8, which is elevated with respect to the second output and which can be called a "substrate".

Regarding claims 7 and 8, the light source 40 provides a "first" output from one facet and a "second" output from another facet. These facets can be called "front" and "back" facets, respectively.

Regarding claims 9 and 10, Yang does not disclose that the photodetector 41 is a PIN photodiode. PIN photodiodes are widely used. Absent any showing of criticality, to use a PIN photodiode photodetector would have been obvious to one of ordinary skill in the art at the time of invention, as it is well known to do so.

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Regarding claims 16 and 19, the device of Yang performs all of the recited method steps as evidenced by the foregoing discussion.

9. Claims 13, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Levinson (US 5,019,769).

Yang discloses the invention as claimed with the exception of the recited "processor" to receive signals from the photodetector and to facilitate calibration of the recited "second output". Yang does call photodetector 41 a "back facet monitor" but does not go into further detail. It is well known to use a photodetector as a monitor in conjunction with a processor to facilitate calibration of a light source, as taught by Levinson. Fig. 3 of Levinson depicts a optical signal transmission system which comprises a laser source 100, having front and back facets, a monitoring photodiode 116, and microcontroller processor 162 that facilitates calibration of the laser. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Yang by incorporating a processor to facilitate calibration of the light source based on signals received from the photodetector, as taught by Levinson.

Allowable Subject Matter

10. Claims 5, 6, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 5, 6, and 20, the prior art of record does not disclose or fairly suggest the invention as claimed,

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specifically wherein a surface of the housing constitutes one of the two recited reflective surfaces used to reflect the second output to the photodetector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Meyer whose telephone number is 703-305-7955. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 703-308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

DCM
September 10, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800